UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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OFFICE OF
AIR, WASTE AND TOXICS

February 10, 2014

Mike Kuntz, Site Manager
Washington Department of Ecology
Voluntary Cleanup Program
P.O., Box 47600
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Dear Mike,

Thank you inviting my comments on the proposal for limited sampling on the Smith property following near-future right-of-way (ROW) remediation of subsurface contamination, which itself follows remedial actions conducted to address much of the soil contamination from the former Heavens Supply facility, now an Ecology Voluntary Cleanup Program Site.

My observations and recommendations are summarized here.

Specific comments:

1) PCE was detected in all three Smith property confirmation indoor air samples (main house and addition). The concentrations were significantly lower than indoor samples collected in October 2011, prior to remediation activities. However, since PCE also was detected in post-remediation sampling in December 2013 (under the Smith house), this indicates that a) there is still a source of PCE in the subsurface; and b) there appears to be an ongoing complete VI exposure pathway from the subsurface to the Smith basement, albeit not of health concern at the time of the single confirmation sampling event.

2) TCE was detected in all three Smith property confirmation indoor air samples (two in the main residence and one in the addition, December 2013). It was not detected in indoor air samples collected in October 2011 and was not detected in soil vapor at a detection limit of 1.07 ug/m3 during the single confirmation sampling event in December 2013. This leaves a question as to whether TCE as a daughter product of PCE is a potential chemical of concern for vapor intrusion at this Site. TCE, a volatile chlorinated chemical with both carcinogenic and non-carcinogenic properties, is of particular toxicological concern where women of reproductive age may be exposed, due to the potential for fetal heart malformations to occur during early pregnancy. The concentrations of TCE reported in the single confirmation sampling event in the Smith property buildings were about 1.5 orders of magnitude below concentrations of concern for this outcome. Still, the fact that TCE was present at detectable levels may represent a "flag" that PCE remaining in the subsurface may break down into TCE. It could be worthwhile to consider this possibility in consideration of the subsurface geochemistry as well as any

trends that exist in historical analyses for TCE in the subsurface media and indoor air at the Site.

Plans for confirmation sampling after ROW remediation do not appear to include indoor air sampling at either the Smith house or the addition on the Smith property. TCE and PCE were detected in the December 2013 confirmation sampling in both indoor air locations, and PCE was detected in soil vapor, suggesting the need for additional confirmation sampling, given the inherent variations and uncertainties associated with estimating indoor air concentrations from the vapor intrusion pathway over time. Additionally, while upcoming ERH and SVE operations to address the ROW contamination could be expected to reduce subsurface contamination overall in the ROW area, the subsurface conditions may well be impacted in unpredictable ways by these activities beyond just the immediate ROW, which is close to the Smith property.

3) I agree in principle with the proposal to conduct performance sampling during ROW remedial activities, but I recommend inclusion of indoor air sampling at locations within the Smith house and the addition where basement and addition room samples previously have been collected, along with a sample near the floor drain in the basement that you have asked for. I believe you have also asked that indoor air samples be collected from vertical locations that represent typical breathing zones, approximately 5 feet up from a floor.

4) The liable party's proposal for soil gas performance sampling is limited to the VP-1 location. I believe it is important to also include the second location previously used, i.e., VP-2, to help address the variabilities in soil gas over lateral space under the building.

General and Summary Comments:

According to Figure 5, Confirmation Soil Sampling Locations taken December 2013 (which you attached to the invitation for comments, and in Table 1 of the Smith Property Analytical Results, PCE remains in soil to the north of the Heavens Supply Company property, i.e., toward the Smith property. No sampling appears to have occurred on the Smith property. Two samples (CON-1 and CON-2) showed concentrations of PCE of 27 ug/kg at the 23-25 foot depth, and sample CON-2 showed a concentration of 16 ug/kg at the 13-15 foot depth. These concentrations are lower than the cleanup level of 50 ug/kg but only by a factor of about 2 to 3. This indicates there is still a source of PCE in the soil in this area, which presumably will not be addressed by the upcoming ROW remedial activities. While these two sample concentrations do not exceed the soil cleanup level, they could potentially result in migration to groundwater, and more importantly, to still-existing residual PCE in groundwater or to DNAPL. According to language in the October 8, 2010 Feasibility Study by Landau Associates, the ERH was designed to address soil contamination, not DNAPL. This also raises concerns about a source remaining that could contaminate subsurface media and perhaps indoor air as it slowly dissolves.

My concern expressed in paragraph above stems also in part from language in the Feasibility Study (section 6.2): "Any residual PCE in groundwater is anticipated to naturally attenuate after completion of active ERH." Residual PCE in soil could potentially contribute to existing residual PCE in groundwater. The same section also states: "Perched groundwater in the treatment zone will be rapidly evaporated or boiled off with any associated dissolved PCE and captured along with other vapor extracted by the system." Was this verifiably accomplished by the ERH system that was employed?

Since the SVE and ERH actions to be taken at the ROW will disturb the subsurface in ways not fully predictable, performance sampling followed by confirmation sampling of the indoor air in both buildings is recommended along with soil gas samples. Confirmation sampling would best be conducted after a suitable period of time so that it can be reasonably assumed that the subsurface has reached a state of equilibrium after SVE and ERH activities have ceased. Even if there were no more SVE and ERH activities to be conducted (in this case, at the ROW), I would still argue that additional confirmation sampling of the indoor air and soil gas on the Smith Property would be in order. Only a single confirmation sampling event has taken place since the cleanup activities of the primary Site releases.

As you noted in your e-mail message to me dated January 7, 2014: "From time to time an NFA under the VCP can be granted contingent on continued and successful compliance monitoring explicitly defined within the NFA. Under this scenario the property owner can obtain a NFA but with some risk that the NFA could be rescinded. It is very likely any NFA for the Smith Property would include a compliance monitoring provision."

I agree that there is a need for compliance monitoring at the Smith Property to continue until Ecology is satisfied that the subsurface no longer presents an unacceptable threat from Site releases. Metaphorically, if the Smith Property were a drinking water well that had been unacceptably contaminated by Site releases, certainly more than a single confirmation sample of drinking water quality would be required before the liable party was allowed to walk away, leaving the people who drink the water to assume- with no further confirmation sampling or monitoring - that it will present no threat to their health.

Thank you for the opportunity to provide comments while Ecology evaluates the liable party's latest proposal for this Site. Please let me know if I can be of any assistance to you. I can be reached at 206.553.0684.

Very truly yours,

Marcia L. Bailey, D.Env.
Toxicologist